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A new host for *Puccinia menthae*

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Abstract—*Cyclotrichium* (*Lamiaceae*) is reported as a new host genus for the rust fungus, *Puccinia menthae.* The morphological and microscopical characteristics of this fungus are described and illustrated based on the collected materials.

Key words—Malatya, *Pucciniales*, taxonomy, Turkey

Introduction

The genus *Cyclotrichium* (Boiss.) Maden. & Scheng. (*Lamiaceae*, tribe *Mentheae*) contains nine species distributed in Turkey, Lebanon, Iraq, and Iran. Six *Cyclotrichium* species have been reported in Turkey, including two endemic species: *C. glabrescens* (Boiss. ex Rech.f.) Leblebici and *C. niveum* (Dirmenci et al. 2010, Dirmenci 2012). To our knowledge no rust fungi have previously been described on *Cyclotrichium* or cited for earlier synonyms of the species.

Puccinia menthae is an autoecious, macrocyclic, long-cycle rust recorded on 28 genera of *Lamiaceae* (Farr & Rossman 2015).

In Turkey, *Puccinia menthae* has been reported on *Calamintha*, *Clinopodium*, *Mentha*, *Micromeria*, *Origanum*, and *Satureja* (Bahçecioğlu & Kabaktepe 2012).

Here we present a record of *Puccinia menthae* on a new host genus, *Cyclotrichium*, from Malatya province, Turkey.

Materials & methods

The material on which this study is based was collected from Malatya in 2015. The host specimen was prepared according to established herbarium techniques. The host plant was identified according to Leblebici (1982) and Dirmenci et al. (2010). Spores

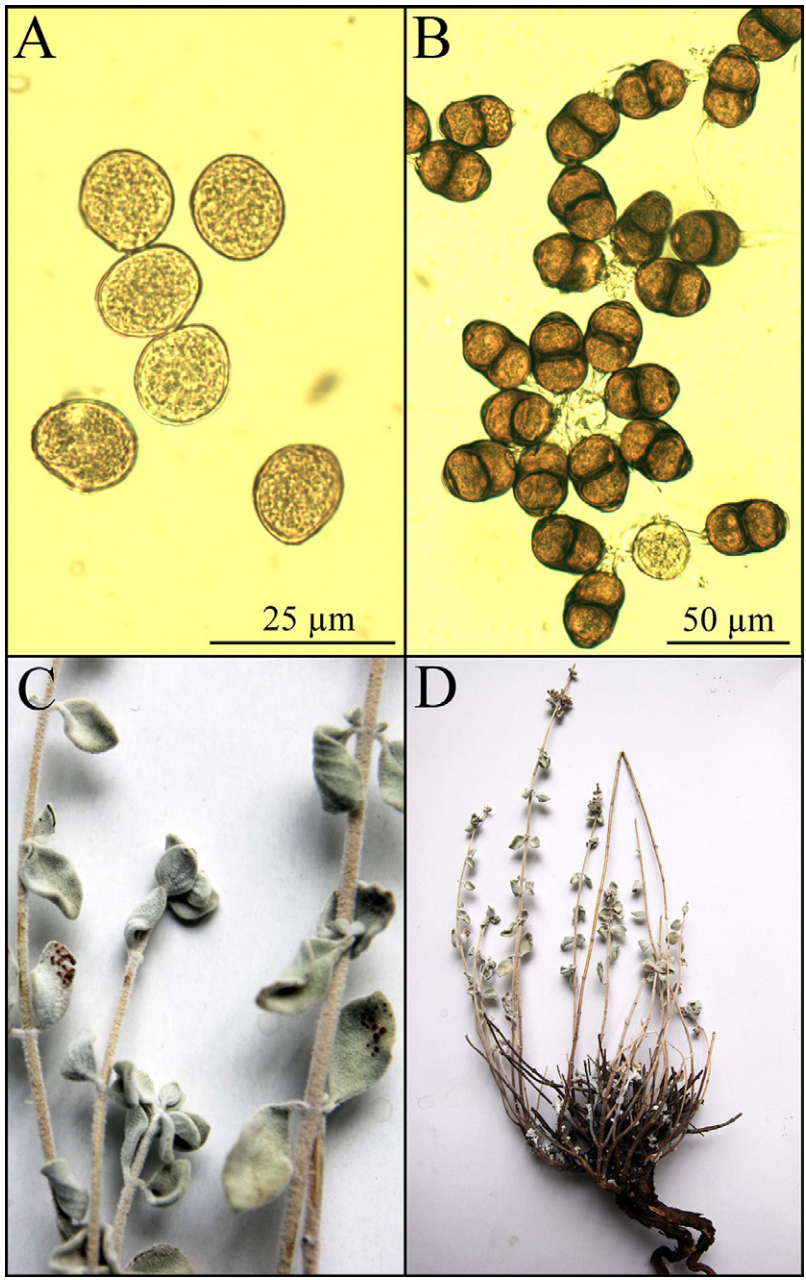

Fig. 1. *Puccinia menthae* on *Cyclotrichium niveum*. A, urediniospores; B, teliospores; C, infected brown areas on leaf tissue; D, herbarium specimen (INU 1200).

were scraped from the dried host specimen, mounted in lactophenol, and measured using Analysis LS Starter software.

Names and families of plants are given according to http://www.theplantlist.org. The specimen is preserved in the Inonu University Herbarium, Battalgazi, Malatya, Turkey (INU).

Taxonomy

Puccinia menthae Pers., Syn. Meth. Fung.: 227 (1801). Fig. 1

Spermogonia and aecia not found. Uredinia hypophyllous, rounded, scattered, 0.5–1 mm, surrounded by the epidermis, sometimes confluent, yellowish or brownish. Urediniospores globose to obovoid or ellipsoid, 17–28 × 14–19 µm; wall ≤2.5 µm thick, echinulate, hyaline to light yellow; germ pores 2, equatorial. Telia mostly hypophyllous, rarely amphigenous, on leaves, petioles and stems, rounded, blackish brown, scattered, pulverulent, 0.5–1.5 mm. Teliospores ellipsoid to obovoid, rounded at both ends, not or only slightly constricted at the septum, 26–35 × 19–23 µm, verrucose (sometimes smooth), brown, wall 1.5–3 µm thick at sides, 3–5 µm thick apically, apical in upper cell and close to septum in lower cell, with a hyaline papilla; pedicel slender, hyaline, longer than the spores.

Specimen examined—On *Cyclotrichium niveum* (Boiss.) Manden. & Scheng. (*Lamiaceae*). Turkey: Malatya, Konak, Beydağı, 1700–1750 m a.s.l., 6.Sep.2015, T. Kolaç 1054 (INU 1200).

Remarks: Our record of *Puccinia menthae* on *Cyclotrichium niveum* increases the host list of this cosmopolitan rust species to include 29 lamiaceous genera.

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